



# **Los Angeles County Healthcare-Associated Infections 2015 Regional Summary Report**

*Los Angeles County Department of Public Health | July 2017*

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Cover image: *Klebsiella pneumoniae* bacteria, National Institute of Allergy and Infectious Diseases (NIAID) – Creator, David Dorward; Ph.D., 2014.

# Overview

## Purpose of This Report

Since 2010, healthcare-associated infections (HAI) have been mandated reportable by California Senate Bill (SB) 1058. Hospitals self-report their HAI data using the Centers for Disease Control and Prevention's (CDC) National Healthcare Safety Network (NHSN), a free, web-based software system. The Los Angeles County Department of Public Health (LACDPH) obtained voluntary conferral of rights to this data from all hospitals in LAC, excluding the two Veteran Affairs (VA) facilities to which the reporting mandate does not apply. In 2015, LACDPH requested acute care hospitals (ACHs) voluntarily report carbapenem-resistant *Enterobacteriaceae* (CRE) into NHSN.

In the five years since we obtained access, we have provided guidance to infection preventionists (IPs) and other facility staff in entering, reporting, and tracking infections in NHSN. LAC is a unique area within California, encompassing nearly 25% of hospitals in the state, as well as 25% of the state's population. Due to the large size and complexity of our health systems, we found the need for a local perspective of HAI trends; this first regional summary of HAI data will provide trend analysis to identify areas where improvements have been achieved and where prevention efforts must be focused upon.

## Why Are Multi-Drug Resistant Organisms of Concern to Public Health?

Multi-drug resistant organisms (MDROs) pose a threat to patient safety, and have been designated by CDC as a "winnable battle" and urgent public health priority. Beginning with methicillin-resistant *Staphylococcus aureus* (MRSA) in 2008, through the reporting of carbapenem-resistant *Klebsiella pneumoniae* in 2010-12, LACDPH recognized MDROs as a public health problem that were affecting not only individual facilities, but the county as a whole as patients accessed care from a variety of settings. We know that robust surveillance will help facilities track and respond to these emerging threats, especially now as we see CRE becoming more prevalent on the West Coast.

## LA County's Role in Fighting HAIs and MDROs

LACDPH connects healthcare facilities to resources, provides infection control consultation, and disseminates best practices identified through work with local healthcare facilities, the California Department of Public Health (CDPH) and CDC. In collaboration with CDC, LACDPH is initiating prevention programs aimed at curbing the spread of resistance and improving antimicrobial stewardship among all healthcare facilities.

Analysis of HAI data, including the results included in this report, will guide LACDPH to target geographic areas with higher MDRO and/or HAI incidence. We will engage these facilities in infection prevention and antimicrobial stewardship collaboratives, provide educational resources, and work toward HAI infection control gap mitigation. The goal of reducing HAI, particularly MDROs, in LAC can be achieved through working partnerships between healthcare facilities and public health.

# Methods

## Data Sources

This report includes all data reported into the NHSN LACDPH group from January through December 2015. All 97 hospitals in LAC (excluding the two VA facilities) submitted data. Hospitals reporting <12 months of data were excluded from analysis.

Note that all data are presented in aggregate for LAC, and are meant to provide an overview of HAI measures countywide. Individual facility measures can be found in the California Department of Public Health (CDPH) annual HAI report:

<https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/AnnualHAIReports.aspx>

Our report is separated into acute care hospital (ACH) and long-term acute care hospital (LTAC) sections due to the lack of risk stratification in the LTAC setting. Some hospital infections are compared by LAC service planning areas (SPA). As there are so few LTACs in LAC, data are not separated by SPA for LTACs.

To find out what SPA your facility is located in, please visit Los Angeles County's District Locator website: <http://gis.lacounty.gov/districtlocator/>

## Infections and Analysis

This report looks at six HAIs:

1. Central line-associated bloodstream infections (CLABSI)
2. Surgical site infections (SSI) following 29 surgical procedure categories
3. Positive laboratory results for methicillin-resistant *Staphylococcus aureus* (MRSA) found in the bloodstream
4. Positive laboratory results for vancomycin-resistant *Enterococcus* (VRE) found in the bloodstream
5. Positive laboratory results for *Clostridium difficile* (CDI) in stool
6. Positive laboratory results for carbapenem-resistant *Enterobacteriaceae* (CRE) in any specimen

Using the standardized infection ratio (SIR), this report looks at the HAI performance among facilities in LAC in aggregate by displaying how many HAIs were reported during 2015. The SIR shows whether LAC as a whole had significantly more, fewer, or about the same number of HAIs compared to the number predicted for all facilities based on the national baseline data.

$$\text{SIR} = \frac{\text{Number of observed infections}}{\text{Number of predicted infections}}$$

The SIR summary measure adjusts for differences between healthcare facilities such as types of patients and procedures, as well as other factors such as the facility's size and whether it is affiliated with a medical school. It compares the number of infections that were predicted using data from a baseline time period, which varies for different infection types.

When the SIR is calculated there are three possible results:

- **The SIR is less than 1.0** – this indicates that there were fewer infections reported during the surveillance period than would have been predicted given the baseline data.
- **The SIR is equal to 1.0** – as in any ratio, the value of 1 indicates that the numerator and denominator are equal. In this case, the number of infections reported during the surveillance period is the same as the number of infections predicted given the baseline data.
- **The SIR is greater than 1.0** – this indicates that there were more infections reported during the surveillance period than would have been predicted given the baseline data.

While an SIR less than 1.0 is an indicator that fewer infections are occurring than are predicted, there is still work to be done. New measures, including the US. Department of Health and Human Services (HHS) CLABSI target SIR of 0.5, is much lower than 1.0 and indicates that simply having fewer than the expected number of infections is not enough to mark improvements in HAI. In addition, NHSN is developing new baselines to show improvements in HAI that will more accurately reflect the current landscape of HAI measures nationwide. As appropriate, comparisons are made to determine if the calculated SIR in this report is statistically different from the national baseline.

In the SSI portion of the report, an SIR is indicated except for those settings or surgical procedure categories for which there is no risk adjustment process. For infections where risk adjustment has not been evaluated, data are displayed as infection rates. The infection rate measures the number of new infections seen in a hospital during a given time frame for those patients at risk for infection; ie, those who have undergone surgery. A rate is calculated for each event type as the total number of infections or events reported during 2015 divided by the total number of days that patients were in the hospital and at risk for that infection or event.

## Acknowledgements

The HAI Program would like to thank the infection prevention, quality/risk management, laboratory, and information technology staff in Los Angeles County hospitals for their collaboration in providing the data in this report.

# Results

## Key findings

### CLABSI

This report highlights the SIR in adult critical care and general ward locations in acute care hospitals continues to indicate fewer infections observed than predicted based on national baseline data. However, the 2015 data represent a 30% increase over the measures in 2014 for these same locations. A significantly higher number of infections were observed in LTAC critical care units than predicted, with an SIR of 3.30. That is higher than the California SIR of 2.22 for all 23 LTACs in the state. Aggregated facility analysis by SPA region identified SPAs 1 and 5 as having an SIR in the highest quartile. However, these differences were not statistically significant and may not be due to true regional variation.

### LabID - MRSA/VRE BACTEREMIA

A 27% increase in the MRSA bacteremia SIR was noted from 2014 to 2015, a departure from previous years when it remained relatively unchanged. Certain regions of the county had a higher SIR than the pooled average, notably in SPA 5.

### LabID - CDI

CDI continues to be a problem in LAC, having the highest SIR of any infection in LAC. The SIR for acute care hospitals has remained consistently around 1 for the past four years, higher than the HHS target SIR of 0.7. In 2015, the CDI SIR was highest in SPAs 2 and 3.

### SSI

The procedures with the five highest SIRs are displayed in the main SSI section. Of these five procedures, only appendix surgery had an SIR that was significantly higher than the national baseline. Overall, this was the only procedure category for which the SIR was greater than 1.

## Central Line-Associated Bloodstream Infection (CLABSI) Events

The facility-wide CLABSI data were pulled from the NHSN LA County group on September 9<sup>th</sup>, 2016, and only locations that reported 12 months of data in 2015 were included in this analysis.

The SIRs for CLABSIs are adjusted for:

- Type of patient care location
- Hospital affiliation with a medical school (for some units)
- Bed size of the patient care location (for some units)

The national baseline for CLABSI contains NHSN data from 2006 – 2008.

### Key Highlights

While significantly fewer infections (**better**) were observed than predicted for all critical care location types (*Table 2*), the 2015 LAC CLABSI SIR is higher than both the 2014 California-wide pooled SIR of 0.51, and the 2014 national SIR of 0.5

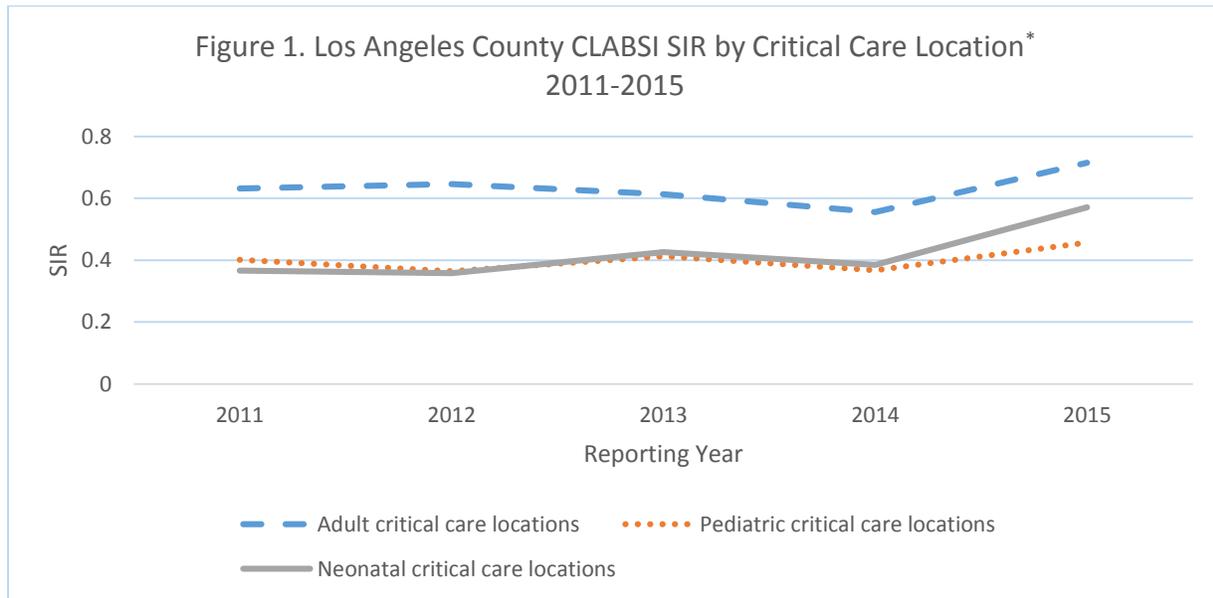
Overall 10.5% of CLABSI events reported indicated two pathogens identified in the blood culture; *Enterococcus* spp and *Candida* spp were the most frequently identified secondary organisms. In adult critical care locations, the most frequent CLABSI pathogens reported in NHSN were *Candida* spp (255, 21.1%) and *Enterococcus* spp (204, 17.0%). In adult ward locations, the most frequent pathogens reported were also *Candida* spp (130, 15.0%) and *Enterococcus* spp (116, 13.4%).

**Table 1. Pooled Mean CLABSI Rates, by Location, 2015**

	LAC CLABSI rate (per 1,000 patient days)	CA CLABSI rate (per 1,000 patient days)
<b>Adult critical care locations (n=77)</b>	1.49	1.12
<b>Non-LTAC (n=72)</b>	1.34	1.02
<b>LTAC (n=5)</b>	3.96	4.53
<b>Adult ward locations (n=86)</b>	1.07	0.95
<b>Non-LTAC (n=77)</b>	0.91	0.81
<b>LTAC (n=9)</b>	2.49	1.82
<b>Pediatric critical care locations (n=13)</b>	0.63	1.57
<b>Neonatal critical care locations (n=40)</b>		
<= 750 grams birthweight	3.61	2.04
751 -1000 grams birthweight	1.40	1.87
1001-1500 grams birthweight	1.11	0.80
1501 -2500 grams birthweight	0.90	0.59
> 2500 grams birthweight	1.44	0.92

**Table 2. Los Angeles County Standardized Infection Ratios, 2015**

Location	SIR (95% CI)
<b>Adult critical care locations</b>	
Non-LTAC (n=72)	0.70 (0.63, 0.78)
LTAC (n=5)	3.30 (2.20, 4.77)
<b>Pediatric critical care locations (n=13)</b>	0.46 (0.32, 0.63)
<b>Neonatal critical care locations (n=40)</b>	0.57 (0.43, 0.73)

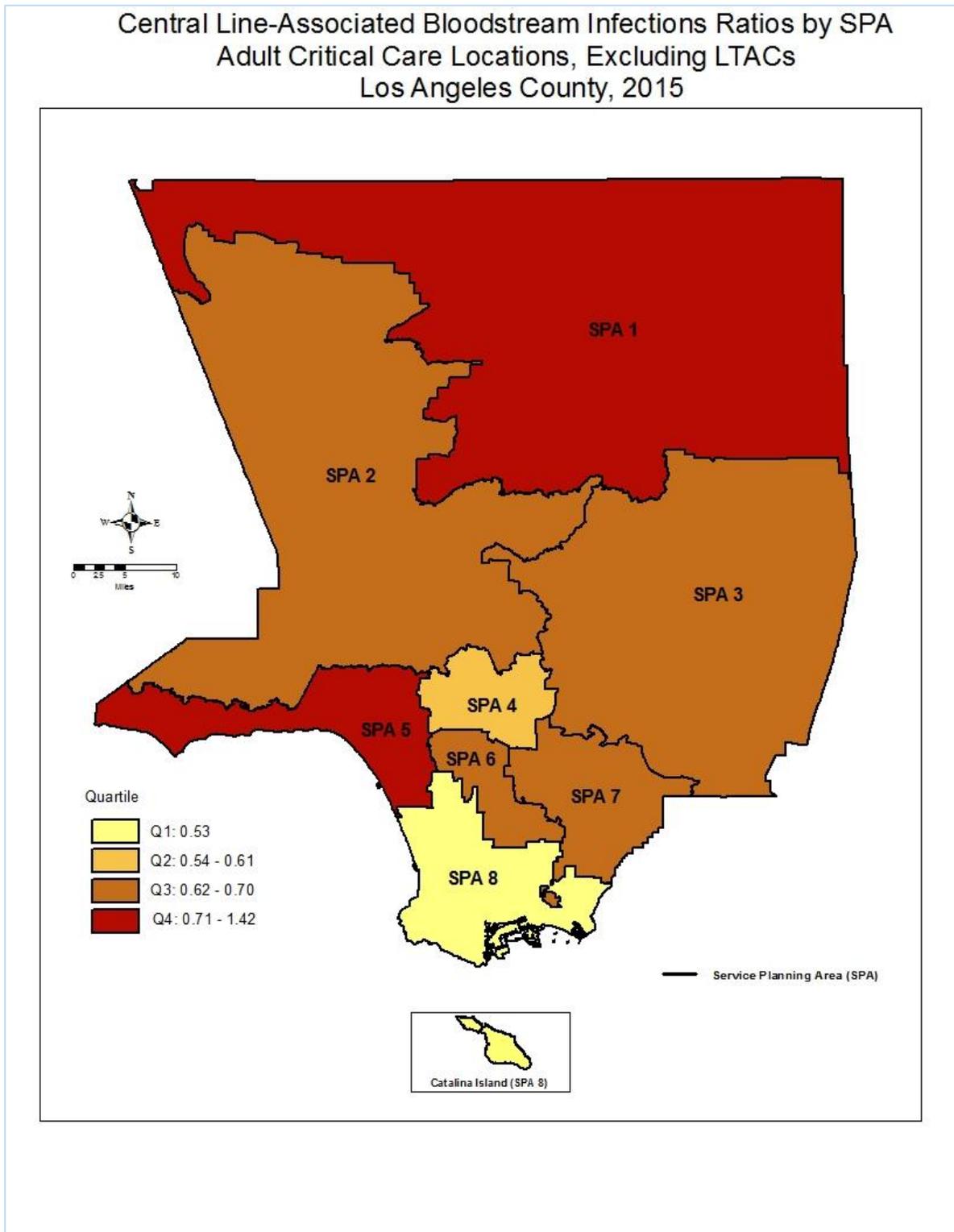


\*For facilities reporting 12 months in-plan data, excluding LTACs

**Table 3. Pooled Mean Los Angeles County CLABSI Rates and Standardized Infection Ratios by Service Planning Area (SPA), Adult Critical Care Locations, Excluding LTACs, 2015**

	Number of Reporting Hospitals	CLABSI rate (per 1,000 patient days)	SIR
<b>SPA 1</b>	2	1.80	1.42 (0.83, 2.30)
<b>SPA 2</b>	17	1.22	0.67 (0.50, 0.88)
<b>SPA 3</b>	13	1.39	0.67 (0.44, 0.99)
<b>SPA 4</b>	12	1.30	0.62 (0.50, 0.77)
<b>SPA 5</b>	5	1.59	1.06 (0.84, 1.32)
<b>SPA 6</b>	1	1.04	0.70 (0.22, 1.68)
<b>SPA 7</b>	12	1.26	0.64 (0.40, 0.99)
<b>SPA 8</b>	10	1.27	0.54 (0.40, 0.73)

Figure 2. CLABSI SIR by SPA, 2015.



## Multidrug-Resistant Organism (MDRO) and *Clostridium difficile* Infection (CDI) Module: LabID Event Reporting

The MDRO and CDI Module includes LabID Event reporting, which uses laboratory testing data (without clinical evaluation of the patient) for vancomycin-resistant *Enterococci* (VRE) and methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infections, *Clostridium difficile* infections (CDI), and carbapenem-resistant *Enterobacteriaceae* (CRE).

Reporting of CRE data in NHSN is currently voluntary in LAC. There are 40 hospitals that have conferred CRE rights to the NHSN LACDPH group as of the publication of this report.

The facility-wide data were pulled from the NHSN LACDPH group on October 1<sup>st</sup>, 2016, and only hospitals that reported 12 months of data in 2015 were included in this analysis. For comparison, some 2014 California and National HAI rates have been provided in *Tables 4, 5, and 7*.

The national baseline for CDI and MRSA contains NHSN data from 2010 – 2011. There is no previous national baseline data for VRE or CRE.

Number of hospitals that reported 12 months of data in 2015:

- CDI: 94
- VRE: 94
- MRSA: 93
- CRE: 23

**Table 4. Definitions of Onset Types.**

Community-onset (CO)	LabID event collected within the first 3 days of admission to a facility.
Healthcare-onset (HO)	LabID event collected more than 3 days after admission to a facility. For CDI, the HO rate includes both HO and specimens collected within the first 3 days of admission from a patient who was discharged from the reporting facility within the past 30 days.

**Table 5. Definitions of Infection Measures.**

HO Rate	Number of facility-wide HO events / number of facility-wide patient days x 10,000.
CO Rate	Number of facility-wide CO events / number of facility-wide patient admissions x 100.
Standardized Infection Ratio (SIR)	The SIR is calculated by dividing the number of observed HO events by the number of predicted HO events. The number of predicted events is calculated using LabID probabilities estimated from NHSN data during a baseline time period, which represents a standard population. The SIR will be calculated only if the number of expected events (numExp) is $\geq 1$ to help enforce a minimum precision criterion.

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## Acute Care Hospital Data

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### Key Highlights

A 27% increase in MRSA bacteremia SIR was noted from 2014 to 2015, a departure from previous years where it remained relatively unchanged. Certain regions of the county had a higher SIR than the pooled average, notably in SPA 5.

CDI continues to be a problem in LAC, having the highest SIR of any infection in LAC and is elevated compared to the 2013 HHS 5-Year HAI Reduction Target SIR of 0.7. The SIR for acute care hospitals (ACHs) has remained consistently around 1 for the past four years, indicating more progress needs to be made to meet the HHS goals. In 2015, the CDI SIR was highest in SPAs 2 and 3.

Both CO and HO VRE rates have been consistently decreasing over the past five years.

While CRE is known to be endemic in LAC, we were unable to draw comparisons both over time and between regions (SPAs) due to the lack of consistent data available to us. However, it is worth noting that of the 23 hospitals that provided 12 months of data in 2015, the CO rate was 0.07 per 100 admissions and the HO rate was 0.93 per 10,000 patient days, both of which are higher than CO and HO rates for VRE and MRSA at the same facilities.

To illustrate the differences in SIR of MRSA and CDI by SPA in LAC, we generated maps that demonstrate differences in SIR by quartile (*Figures 5&6*). Only SPAs with more than 1 ACH contributing data are reported. Tables with individual SPA SIR and rates can be found in *Appendix 1*.

**Table 6. Overall Los Angeles County ACH SIRs, 2015.**

Infection	Number of Reporting Hospitals	Number of HO Infections	LAC SIR	CA SIR	National SIR*
CDI	84	3,352	1.09	1.08	0.92
MRSA <sup>^</sup>	84	287	1.10	0.90	0.87

\*: From 2014 HAI Reports.

<sup>^</sup>: Reported as bloodstream infection (BSI) only.

**Table 7. Overall Los Angeles County ACH Pooled HO Rates, 2015.**

Infection	Number of Reporting Hospitals	Number of HO Infections	LAC HO Rate (per 10,000 patient days)	CA HO Rate	National HO Rate*
VRE <sup>^</sup>	85	231	0.51	0.40	-
CRE	22	149	0.94	-	-

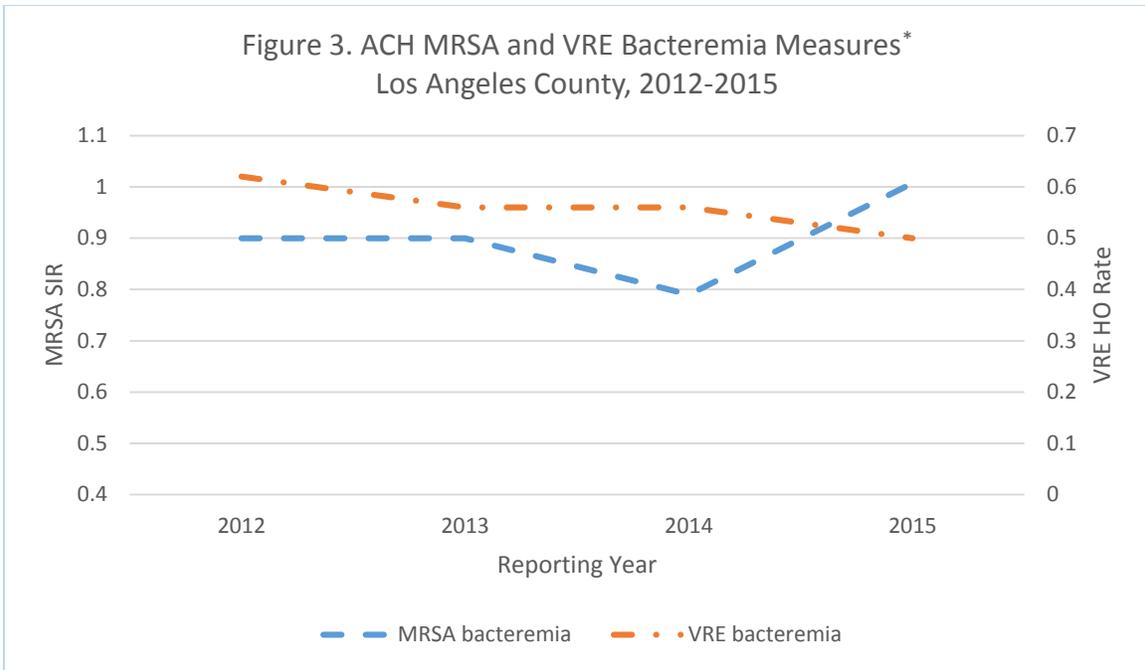
\*: From 2014 HAI Reports.

-: No reported data.

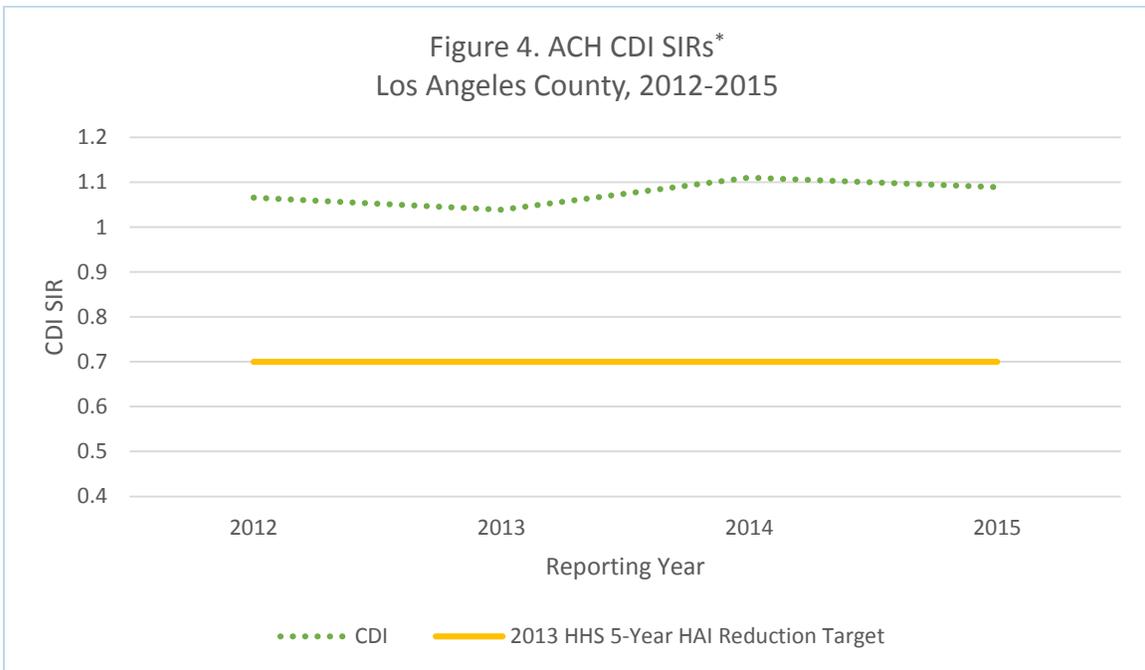
<sup>^</sup>: Reported as bloodstream infection (BSI) only.

**Table 8. Overall Los Angeles County ACH Pooled CO Rates, 2015.**

Infection	Number of Reporting Hospitals	Number of CO Infections	LAC CO Rate (per 100 admissions)
CDI	85	3,404	0.34
MRSA	84	921	0.084
VRE	85	142	0.013
CRE	22	216	0.066



\*For facilities reporting 12 months in-plan data, excluding LTACs



\*For facilities reporting 12 months in-plan data, excluding LTACs

Figure 5. ACH CDI SIR by SPA, 2015.

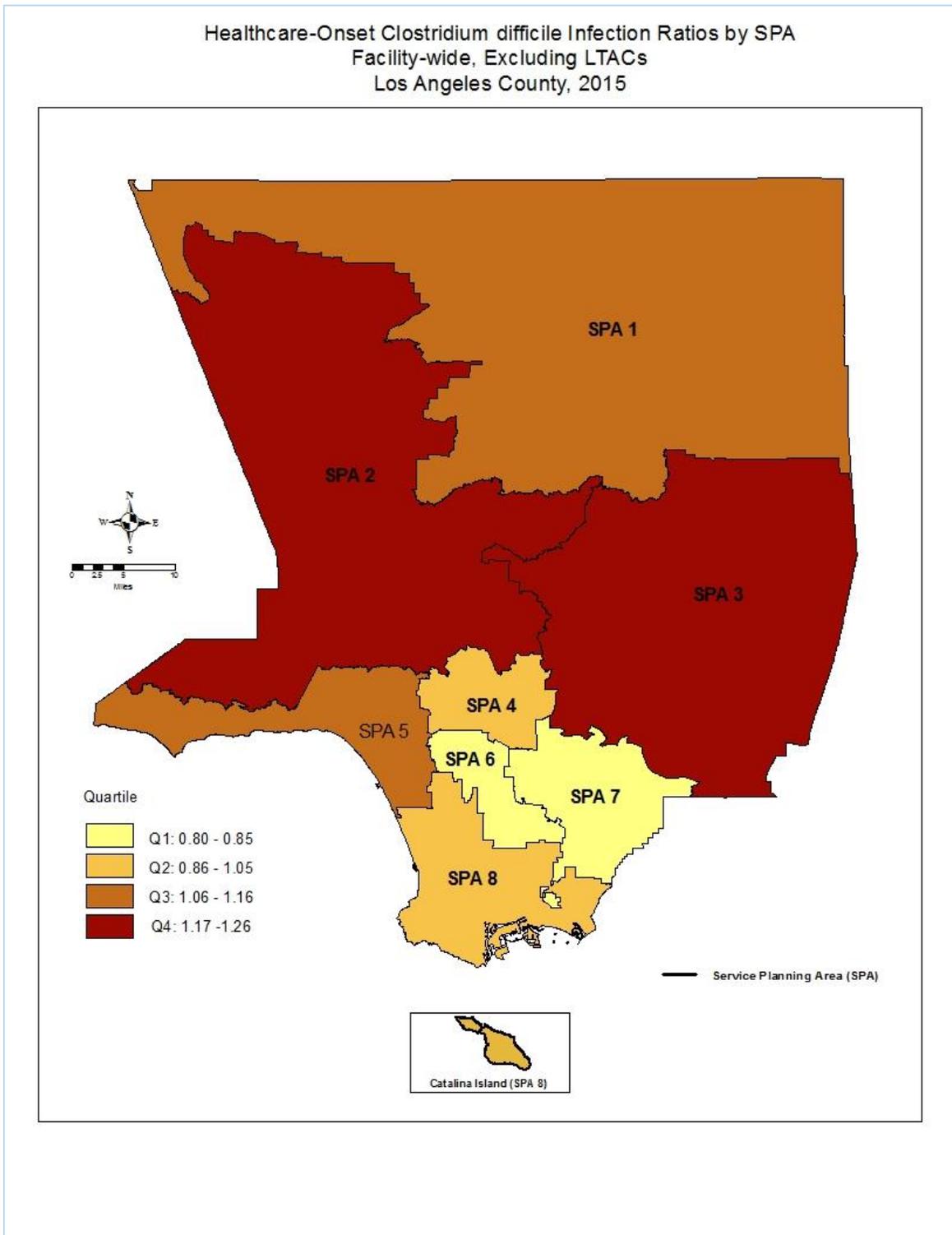
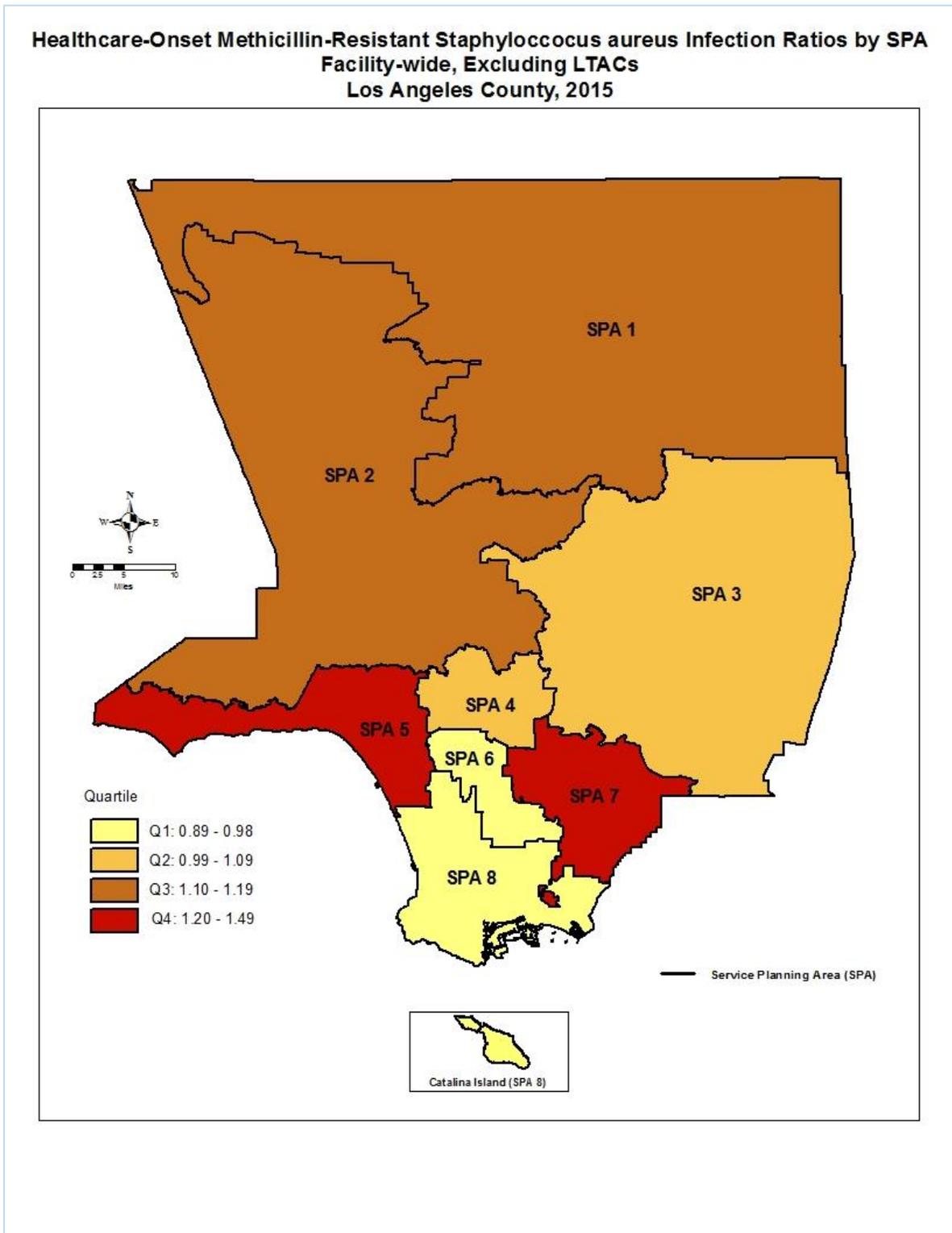


Figure 6. ACH MRSA SIR by SPA, 2015.



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*Long-Term Acute Care Hospital Infection Data*

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**Table 9. Overall Los Angeles County LTAC Pooled CO Rates, 2015 (n=9).**

Infection	Number of CO Infections	LAC CO rate (per 100 admissions)
CDI	78	0.99
MRSA <sup>^</sup>	13	0.17
VRE <sup>^</sup>	5	0.066
CRE	§	§

§: Only one LTAC reported 12 months of data in 2015; for this reason, we did not include their rate.

<sup>^</sup>: Reported as bloodstream infection (BSI) only.

**Table 10. Overall Los Angeles County LTAC Pooled HO Rates, 2015 (n=9).**

Infection	Number of HO Infections	LAC HO rate (per 10,000 patient days)	California HO Rate	National HO Rate
CDI	276	13.57	13.32	-
MRSA <sup>^</sup>	46	2.23	2.5	-
VRE <sup>^</sup>	39	1.89	1.58	-
CRE	§	§	-	-

§: Only one LTAC reported 12 months of data in 2015; for this reason, we did not include their rate.

-: No reported data.

<sup>^</sup>: Reported as bloodstream infection (BSI) only.

## Surgical Site Infections (SSIs)

The LAC In-Plan Complex A/R SIR was calculated for each of the 29 California-mandated reportable surgical procedure categories, which includes only Deep Incisional Primary and Organ/Space SSIs identified during admission or readmission to the reporting facility. The procedures with the five highest SIRs are displayed below (see *Appendix 2* for complete list procedures). Of these five procedures, only appendix surgery had an SIR that was significantly higher than the national baseline.

The facility-wide data were pulled from the NHSN LACDPH group on September 7, 2016 for all hospitals reporting any data in 2015. A comparison of SIRs in each procedure type for all hospitals and only those reporting 12 months of data did not yield statistically different SIRs, except where noted.

The national baseline for SSIs contains NHSN data from 2006 – 2008.

**Table 11. LAC In-Plan Complex A/R SIR, 2015.**

Procedure Code	Procedure	Facilities Reporting (% with 12 months)	Number of Procedures	SSI Events Observed	SIR	SIR Range	
						Minimum	Maximum
APPY	Appendix Surgery	78 (81)	10605	112	1.51	0.00	8.75
CHOL	Gallbladder Surgery	80 (76)	12824	59	0.95	0.00	5.83
COLO	Colon Surgery	78 (67)	6652	195	0.93	0.00	3.16
VHYS	Vaginal Hysterectomy	64 (44)	1787	7	0.76	0.00	3.62
XLAP	Exploratory Laparotomy	77 (66)	11846	67	0.77	0.00	12.82

## Appendices

### Appendix 1: Additional LabID Measures

**Table 1. Comparison of CO Rates from 2012-2015- ACH only**

	2012	2013	2014	2015
<b>CDI</b>	0.37	0.33	0.35	0.34
<b>MRSA</b>	0.11	0.11	0.11	0.083
<b>VRE</b>	0.02	0.02	0.02	0.01

**Table 2. Comparison of HO SIR from 2012-2015- ACH only**

	n	2012	2013	2014	2015
<b>CDI</b>	85	1.07	1.04	1.11	1.09
<b>MRSA</b>	85	0.90	0.90	0.79	1.01

**Table 3. Comparison of HO VRE rates from 2012-2015- ACH only**

	n	2012	2013	2014	2015
<b>VRE</b>	82	0.62	0.56	0.56	0.50

**Table 4. Comparison of HO Rates from 2012-2015- LTAC only**

	n	2012*	2013	2014	2015
<b>CDI</b>	9	14.9	16.6	15.7	13.6
<b>MRSA</b>	9	1.37	2.22	1.09	2.23
<b>VRE</b>	9	2.50	2.81	1.89	1.89

\*In 2012, there were 10 LTACs reporting data to NHSN.

**Table 5. LAC Pooled CO Rates for 2015 by SPA- ACH only**

SPA	Number of Reporting Hospitals	CO MRSA	CO CDI	CO VRE	CO CRE
1	2	§	0.36	0.003	-
2	19	0.11	0.44	0.02	0.03
3	16	0.09	0.51	0.02	0.10
4	16	0.06	0.28	0.01	0.05
5	6	0.06	0.25	0.01	0.12
6	1	0.06	0.25	0	-
7	12	0.12	0.38	0.01	§
8	13	0.08	0.24	0.01	§

§: Only one ACH in this SPA reported 12 months of data in 2015; for this reason, we did not include their rate.

-: No reported data.

**Table 6. LAC Pooled SIRs for 2015 by SPA- ACH only**

SPA	Number of Reporting Hospitals	MRSA SIR	CDI SIR
1	2	1.19	1.16
2	19	1.11	1.21
3	16	1.00	1.26
4	16	1.09	1.05
5	6	1.49	1.11
6	1	0.98	0.81
7	12	1.26	0.86
8	13	0.89	1.01

**Table 7. LAC Pooled HO Rates for 2015 by SPA- ACH only**

SPA	Number of Reporting Hospitals		HO VRE	HO CRE
	VRE	CRE		
1	2	0	0.079	-
2	19	5	0.42	0.29
3	16	6	0.35	0.49
4	16	6	0.60	0.74
5	6	3	1.53	2.66
6	1	0	0.30	-
7	12	1	0.25	§
8	13	1	0.36	§

§: Only one ACH in this SPA reported 12 months of data in 2015; for this reason, we did not include their rate.

-: No reported data.

## Appendix 2: Complete List of California-Mandated Reportable Surgical Site Infections

Procedure Code	Procedure	Facilities Reporting (% with 12 months)	Number of Procedures	SSI Events Observed	SIR	SIR Range	
						Minimum	Maximum
AAA*	Abdominal Aortic Aneurysm Repair	32 (3)	36	0	0.00	0.00	0.00
APPY	Appendix Surgery	78 (81)	10605	112	1.51	0.00	8.75
BILI	Bile Duct, Liver, or Pancreatic Surgery	59 (31)	1986	61	0.25	0.00	0.68
CARD	Cardiac Surgery	50 (40)	3883	12	0.39	0.00	2.87
CBGB	Coronary Artery Bypass Graft with Both Chest and Donor Site Incisions	38 (61)	2673	15	0.42	0.00	2.69
CBGC*	Coronary Artery Bypass Graft with Chest Incision Only	33 (6)	148	0	0.00	0.00	0.00
CHOL	Gallbladder Surgery	80 (76)	12824	59	0.95	0.00	5.83
COLO	Colon Surgery	78 (67)	6652	195	0.93	0.00	3.16
CSEC	Cesarean Section	56 (88)	35876	39	0.19	0.00	2.89
FUSN	Spinal Fusion	58 (64)	8399	50	0.53	0.00	3.52
FX	Open Reduction of Fracture	78 (73)	8570	48	0.41	0.00	1.90
GAST	Gastric Surgery	73 (27)	5072	26	0.44	0.00	3.20
HPRO	Hip Prosthesis	78 (60)	9920	57	0.58	0.00	2.61
HTP†	Heart Transplant	4 (50)	197	1	0.17	0.00	0.22
HYST	Abdominal Hysterectomy	76 (61)	6875	43	0.74	0.00	5.83
KPRO	Knee Prosthesis	73 (71)	13552	64	0.66	0.00	4.24
KTP	Kidney Transplant	6 (67)	748	4	0.34	0.00	0.48
LAM	Laminectomy	63 (60)	8680	23	0.40	0.00	4.93
LTP	Liver Transplant	4 (75)	277	9	0.21	0.00	0.29
NEPH‡	Kidney Surgery	54 (37)	1994	6	0.23	0.00	2.26
OVRY‡	Ovarian Surgery	74 (57)	6733	3	0.63	0.00	10.87
PACE‡	Pacemaker Surgery	71 (46)	3870	5	0.65	0.00	7.25
REC	Rectal Surgery	64 (11)	576	7	0.30	0.00	2.58
RFUSN*†	Repeat Spinal Fusion	34 (0)	458	7	0.70	0.00	25.00
SB	Small Bowel Surgery	76 (46)	3861	70	0.46	0.00	1.39
SPLE‡	Spleen Surgery	49 (4)	103	0	0.00	0.00	0.00
THOR	Thoracic Surgery	67 (39)	3443	9	0.41	0.00	3.30
VHYS	Vaginal Hysterectomy	64 (44)	1787	7	0.76	0.00	3.62
XLAP	Exploratory Laparotomy	77 (66)	11846	67	0.77	0.00	12.82

\* Unable to calculate p-value due to zero counts.

† Calculated from facilities reporting any data due to zero facilities reporting full 12 months.

‡ No risk adjustment process for this surgical procedure category.